

WHAT IS CLAIMED IS:

1. A liquid crystal display device comprising:

a first substrate including a thin film transistor formed thereon;

5 a first electrode formed on the first substrate and electrically connected to the thin film transistor;

a first insulating layer formed on the first substrate including the thin film transistor and the first electrode;

a window formed in the first insulating layer, the window exposing a predetermined region of the first electrode;

10 a second electrode provided on the first insulating layer and electrically connected to the first electrode;

a second substrate including a third electrode formed thereon;

a first gap between a surface of the third electrode and a surface of the predetermined region of the first electrode; and

15 a second gap between the surface of the third electrode and a surface of the second electrode, wherein the first gap and the second gap include a liquid crystal layer.

2. The device as recited in claim 1, wherein the first electrode is a transmission electrode and the window defines a transmission region for transmitting light
20 supplied from a source internal to the device.

3. The device as recited in claim 1, wherein the second electrode is a reflection electrode and an area including the reflection electrode defines a reflection region for reflecting light supplied from a source external to the device.

4. The device as recited in claim 1, wherein the first gap is larger than the second gap.

5 5. The device as recited in claim 1, wherein the first gap is about twice as long as the second gap.

6. The device as recited in claim 1, wherein the first insulating layer is organic.

10 7. The device as recited in claim 1, wherein the first insulating layer includes photosensitive acryl resin.

8. The device as recited in claim 1, wherein a thickness of the first insulating layer ranges from about $0.5\ \mu\text{m}$ to about $2.5\ \mu\text{m}$.

15 9. The device as recited in claim 1, wherein one of the first electrode and the third electrode include transparent conductive material.

10 10. The device as recited in claim 1, wherein the second electrode includes metal having high reflectivity.

11. The device as recited in claim 1, further comprising a gate driving circuit region including a gate driving circuit section.

12. The device as recited in claim 11, wherein the first insulating layer extends into the gate driving circuit region over the gate driving circuit section.

13. The device as recited in claim 12, wherein the first insulating layer has a dielectric constant less than a dielectric constant of the liquid crystal layer.

14. The device as recited in claim 11, further comprising a second insulating layer formed on the first substrate and extending into the gate driving circuit region.

15. The device as recited in claim 1, further comprising a gate driving circuit region formed on the first substrate.

16. The device as recited in claim 15, wherein the gate driving circuit region is formed from amorphous silicon.

17. The device as recited in claim 1, further comprising a second insulating layer formed on the first substrate.

18. The device as recited in claim 17, wherein the second insulating layer includes a contact hole and the first electrode is electrically connected to the thin film transistor through the contact hole.

19. The device as recited in claim 1, further comprising a color filter layer and a thickness adjusting member formed on the second substrate, wherein the color filter layer

is disposed on the thickness adjusting member.

20. The device as recited in claim 19, wherein a predetermined part of the thickness adjusting member corresponding to the window is removed, whereby a
5 thickness of a first area of the color filter layer corresponding to the window is about twice a thickness of a second area of the color filter layer not corresponding to the window.

21. The device as recited in claim 1, further comprising a color filter layer formed on the second substrate, wherein a thickness of a first area of the color filter layer
10 corresponding to the window is greater than a thickness of a second area of the color filter layer not corresponding to the window.

22. The device as recited in claim 1, further comprising a color filter layer formed on the second substrate, wherein a thickness of a first area of the color filter layer
15 corresponding to the window is about twice a thickness of a second area of the color filter layer not corresponding to the window.

23. The device as recited in claim 1, wherein the liquid crystal layer is homogeneously aligned forming a liquid crystal tilting angle of about 0° .

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24. A liquid crystal display device comprising:
a first substrate including a thin film transistor formed thereon;
an insulating layer formed on the first substrate including the thin film transistor;
a first electrode formed on the insulating layer and electrically connected to the thin

film transistor;

a second electrode provided on the first electrode, wherein a predetermined portion of the second electrode is removed for exposing a predetermined portion of the first electrode;

5 a second substrate including a third electrode formed thereon;

a first gap between a surface of the third electrode and a surface of the predetermined portion of the first electrode; and

a second gap between the surface of the third electrode and a surface of the second electrode, wherein the first gap and the second gap include a liquid crystal layer.

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25. The device as recited in claim 24, wherein the first electrode is a transmission electrode and an area including the predetermined portion of the first electrode defines a transmission region for transmitting light supplied from a source internal to the device.

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26. The device as recited in claim 24, wherein the second electrode is a reflection electrode and an area including the reflection electrode defines a reflection region for reflecting light supplied from a source external to the device.

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27. The device as recited in claim 24, wherein the first gap is larger than the second gap.

28. The device as recited in claim 24, wherein the first gap is about twice as long as the second gap.

29. The device as recited in claim 24, wherein the first gap is less than about 3.3 μm and the second gap is less than about 1.7 μm .

5 30. The device as recited in claim 24, wherein the insulating layer is organic.

31. The device as recited in claim 24, wherein the insulating layer includes photosensitive acryl resin.

10 32. The device as recited in claim 24, wherein one of the first electrode and the third electrode include transparent conductive material.

33. The device as recited in claim 24, wherein the second electrode includes metal having high reflectivity.

15 34. The device as recited in claim 24, further comprising a contact hole formed in the insulating layer, wherein the first electrode is electrically connected to the thin film transistor through the contact hole.

20 35. The device as recited in claim 34, further comprising a third gap between the surface of the third electrode and a surface of the second electrode in an area occupied by the contact hole, wherein the third gap includes the liquid crystal layer and a relationship between sizes of the first, second and third gaps is defined by the following:

second gap < third gap \leq first gap.

36. The device as recited in claim 24, wherein the liquid crystal layer is homogeneously aligned forming a liquid crystal tilting angle of about 0° .

5 37. A method for forming a liquid crystal display device comprising:

forming a thin film transistor on a first substrate;

patterning a first conductive layer formed on the first substrate to form a first electrode on the first substrate, wherein the first electrode is electrically connected the thin film transistor;

10 disposing a first insulating layer on the first substrate including the thin film transistor and the first electrode;

exposing a predetermined region of the first electrode by forming a window in the first insulating layer;

15 patterning a metal layer formed on the first insulating layer to form a second electrode on the first insulating layer, wherein the second electrode is electrically connected to the first electrode;

patterning a second conductive layer to form a third electrode on a second substrate;

20 positioning the first substrate and the second substrate to form a first gap between a surface of the third electrode and a surface of the predetermined region of the first electrode and a second gap between the surface of the third electrode and a surface of the second electrode; and

interposing a liquid crystal layer between the first gap and the second gap.

38. The method as recited in claim 37, wherein the first electrode is a transmission electrode and the window defines a transmission region for transmitting light supplied from a source internal to the device.

5 39. The method as recited in claim 37, wherein the second electrode is a reflection electrode and an area including the reflection electrode defines a reflection region for reflecting light supplied from a source external to the device.

10 40. The method as recited in claim 37, wherein the first gap is larger than the second gap.

41. The method as recited in claim 37, wherein the first gap is about twice as long as the second gap.

15 42. The method as recited in claim 37, wherein the first insulating layer is organic.

43. The method as recited in claim 37, wherein the first insulating layer includes photosensitive acryl resin.

20 44. The method as recited in claim 37, wherein a thickness of the first insulating layer ranges from about 0.5 μm to about 2.5 μm .

45. The method as recited in claim 37, wherein one of the first conductive layer

and second conductive layer are transparent and include at least one of Indium Tin Oxide and Indium Zinc Oxide.

46. The method as recited in claim 37, wherein the metal layer has high
5 reflectivity.

47. The method as recited in claim 37, further comprising providing a gate driving circuit region including a gate driving circuit section on the first substrate.

10 48. The method as recited in claim 47, further comprising extending the first insulating layer into the gate driving circuit region over the gate driving circuit section.

49. The device as recited in claim 48, wherein the first insulating layer has a dielectric constant less than a dielectric constant of the liquid crystal layer.

15 50. The method as recited in claim 47, further comprising disposing a second insulating layer on the first substrate and extending the second insulating layer into the gate driving circuit region.

20 51. The method as recited in claim 37, further comprising providing a gate driving circuit region on the first substrate.

52. The method as recited in claim 51, wherein the gate driving circuit region is formed from amorphous silicon.

53. The method as recited in claim 37, further comprising disposing a second insulating layer on the first substrate.

5 54. The method as recited in claim 53, wherein the second insulating layer includes a contact hole and the first electrode is electrically connected to the thin film transistor through the contact hole.

55. The method as recited in claim 37, further comprising:
10 forming a thickness adjusting member on the second substrate; and
disposing a color filter layer on the thickness adjusting member.

56. The method as recited in claim 55, further comprising removing a predetermined part of the thickness adjusting member corresponding to the window,
15 whereby a thickness of a first area of the color filter layer corresponding to the window is about twice a thickness of a second area of the color filter layer not corresponding to the window.

57. The method as recited in claim 37, further comprising forming a color filter
20 layer on the second substrate, wherein a thickness of a first area of the color filter layer corresponding to the window is greater than a thickness of a second area of the color filter layer not corresponding to the window.

58. The method as recited in claim 37, further comprising forming a color filter

layer on the second substrate, wherein a thickness of a first area of the color filter layer corresponding to the window is about twice a thickness of a second area of the color filter layer not corresponding to the window.

5 59. The method as recited in claim 37, further comprising homogeneously aligning the liquid crystal layer to form a liquid crystal tilting angle of about 0°.

60. A method for forming a liquid crystal display device comprising:
forming a thin film transistor on a first substrate;
10 disposing an insulating layer on the first substrate including the thin film transistor;
 patterning a first conductive layer to form a first electrode on the insulating layer,
wherein the first electrode is electrically connected to the thin film transistor;
 patterning a metal layer formed on the first electrode to form a second electrode,
wherein a predetermined portion of the second electrode is removed for exposing a
15 predetermined portion of the first electrode;
 patterning a second conductive layer to form a third electrode on a second
substrate;
 positioning the first substrate and the second substrate to form a first gap between
a surface of the third electrode and a surface of the predetermined portion of the first
20 electrode and a second gap between the surface of the third electrode and a surface of
the second electrode; and
 interposing a liquid crystal layer between the first gap and the second gap.

61. The method as recited in claim 60, wherein the first electrode is a

transmission electrode and an area including the predetermined portion of the first electrode defines a transmission region for transmitting light supplied from a source internal to the device.

5 62. The method as recited in claim 60, wherein the second electrode is a reflection electrode and an area including the reflection electrode defines a reflection region for reflecting light supplied from a source external to the device.

 63. The method as recited in claim 60, wherein the first gap is larger than the
10 second gap.

 64. The method as recited in claim 60, wherein the first gap is about twice as long as the second gap.

15 65. The method as recited in claim 60, further comprising providing a gate driving circuit region on the first substrate.

 66. The method as recited in claim 65, wherein the gate driving circuit region is formed from amorphous silicon.